Subject:	**How to Set Up the Microsoft Network Client Version 3.0 for MS-DOS**
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How to Set Up the Microsoft® Network Client Version 3.0 for MS-DOS®

Overview

The Microsoft® Windows NT® Network Client Administrator tool allows you to create a network installation startup disk. This startup disk allows a computer to start from a floppy disk that contains the basic MS-DOS® system files with networking. This allows for an "over-the-network" installation of operating systems on computers that do not currently have an operating system or networking ability.

Intended Audience

Network administrators, installers, or IT professionals.

Before You Begin

- You must understand your network, and you must have installed and shared the Network Client Administrator files from the Windows NT 4.0 CD, or have the CD available.
- For a network installation startup disk, you will also need to have one floppy disk that is formatted with MS-DOS system files.
- For installing the Microsoft Network Client for MS-DOS permanently on a computer, you will also need two floppy disks to make an installation disk set, and a computer with MS-DOS installed on it.

> **Note**: The Microsoft Network Client for MS-DOS works with any version of MS-DOS between 3.2 and 6.22 inclusive; however, you may need to refer to the manufacturer of the network interface card (NIC) for the version of MS-DOS the NIC requires.

Making a Network Installation Startup Disk

1. On your Windows NT Server computer, click **Start**, point to **Programs**, point to **Administrative Tools (Common)**, and then click **Network Client Administrator**. To make a Network Installation Startup disk, click to select **Make Network Installation Startup Disk**, as shown in the following figure.

The **Share Network Client Installation Files** dialog box specifies the location of the network client installation files.

2. In the **Path** text box, indicate where the files are located.
3. If you previously used the Network Client Administrator and want to use an existing path to the shared Network Client files, click to select **Use Existing Path**, and then click **OK**.
4. If the files were not shared previously, use one of the following procedures for sharing the files:
a. To share the files contained on the CD, click to select **Share Files**.
b. In the **Share Name** text box, type the name of the new shared directory you want to create.

-or-

a. To copy the files to a new directory and then share the files, click to select **Copy Files to a New Directory, and then Share**.
b. In the **Path** text box at the top of the window, type the destination to the Clients folder on the Windows NT Server CD.
c. In the **Destination Path** text box, indicate where you want to copy the files to. In the **Share Name** text box, type the name of the new shared directory you want to create.
5. To use files that have been previously copied and shared:
a. Click to select **Use Existing Shared Directory**.
b. In the **Server Name** text box, type the name of the network server in which the shared directory is located.
c. In the **Share Name** text box, type the name of the existing shared directory, and then click **OK**.

The following dialog box appears:

The **Target Workstation Configuration** dialog box allows you to select the following:

- The type of floppy disk you are using.
- The operating system to be installed when the computer starts up.
- The NIC installed on the target workstation. If another NIC is needed, see the "Modifying the Startup Disk for Network Interface Cards not in the List" section.

7. After you configure the target workstation, you will see the **Network Startup Disk Configuration** dialog box, shown below. You need to set the following options:

- **Computer Name**: The startup disk must provide the workstation with a computer name that is unique on the network.
- **User Name**: An optional setting where this user name is used as the default logon name.

- **Domain**: The name of the domain to log on to.
- **Network Protocol**: Choose among NetBEUI, NWLink, or TCP/IP. When you click the **Network Protocol** drop down list box, it may appear that you only have one protocol choice, but use the up and down arrows to scroll to the correct network protocol. The NWLink protocol defaults to 802.2 frame type; for more information, see the "Modifying the Startup Disk for NWLink Frame Types" section. For advanced TCP/IP settings and modifications, see the "Additional TCP/IP Settings for the Microsoft Network Client for MS-DOS" section.
- **TCP/IP Settings** (if TCP/IP is selected as the network protocol): By default, the **Enable Automatic DHCP Configuration** check box is selected. To provide a static TCP/IP address, clear the **Enable Automatic DHCP Configuration** check box. Now you must manually provide an IP address and subnet mask. In a routed network, you must also provide a default gateway address.
- **Destination Path**: Indicates the drive letter of your floppy disk drive. The floppy disk must already be formatted with the MS-DOS system files.

The startup disk is now ready for use.

Making an Installation Disk Set and Running Setup

1. On your Windows NT Server computer, click **Start**, point to **Programs**, point to **Administrative Tools (Common)**, and then click **Network Client Administrator**. To copy the Microsoft Network Client for MS-DOS Setup application to two floppy disks, click to select **Make Installation Disk Set**, as shown in the following figure.

> The **Share Network Client Installation Files** dialog box specifies the location of the network client installation files.

2. In the **Path** text box, indicate where the files are located.
3. If you previously used the Network Client Administrator and want to use an existing path to the shared Network Client files, click to select **Use Existing Path**, and then click **OK**.
4. If the files were not shared previously, use one of the following procedures for sharing the files:

a. To share the files contained on the CD, click to select **Share Files**.
b. In the **Share Name** text box, type the name of the new shared directory you want to create.

-or-

a. To copy the files to a new directory and then share the files, click to select **Copy Files to a New Directory, and then Share**.
b. In the **Path** text box at the top of the window, type the destination to the

Clients folder on the Windows NT Server CD.
c. In the **Destination Path** text box, indicate where you want to copy the files to. In the **Share Name** text box, type the name of the new shared directory you want to create.
5. To use files that have been previously copied and shared:
a. Click to select **Use Existing Shared Directory**.
b. In the **Server Name** text box, type the name of the network server in which the shared directory is located.
c. In the **Share Name** text box, type the name of the existing shared directory, and then click **OK**.

The following dialog box appears:

6. Select **Network Client v3.0 for MS-DOS and Windows**, and verify that the destination drive contains a blank, formatted floppy disk (two floppy disks will be required). You may also select the **Format Disks** check box if you want to have the Network Client Administrator format the floppy disks before copying the setup files (remember that all data on the floppy disks prior to formatting will be lost).

After the files are copied onto both disks, the installation disk set is ready for use.

Running Setup on the Workstation

1. On the workstation that is already running MS-DOS (version 3.2 through 6.22), run Setup.exe from Disk #1 of the installation disk set.
2. At the Setup screen, press ENTER to continue with Setup. You will be prompted to provide a directory that will contain the networking files, and it is recommended that you use the default directory (C:\Net). Provide the directory, and then press ENTER to continue.
3. You will be prompted to select a network interface card (adapter). Select your adapter from the list, and then press ENTER.

If you do not find your network interface card in the list, choose **Network adapter not shown on list below**, and then press ENTER.

4. You will be prompted for the location of the network interface driver files. These files are provided by the manufacturer of the network interface card. The driver must be NDIS 2.0-compliant, and will be accompanied by an Oemsetup.inf file that is also provided by the manufacturer. Press ENTER, and continue.
5. You will be prompted for your user name. Type your user name, and then press ENTER. This will take you to the Setup menu.

The Setup Menu

The Setup menu gives you three options:

- **Change names:** Allows you to change the user name, computer name, workgroup name, and the domain name.
- **Change Setup Options:** Allows you to change the redirector option, startup options, logon type, and set hot keys.
- **Change network Configuration:** Allows you to add and remove network adapters and protocols. It also allows you to change settings related to the protocol or network adapter.

Use the UP ARROW and DOWN ARROW keys to select an option, and then press ENTER. You will be given a new menu associated with your choice from above.

If all of the options have been set, select **The listed options are correct**, press ENTER, and the Setup program will complete the installation process. Depending on your selections, you might not use Disk #2 of the installation set.

The Change Names Menu

If you select **Change names** in the Setup menu, you will see the following menu.

The options for this menu are:

- **Change User name**
- **Change Computer Name**
- **Change Workgroup Name**
- **Change Domain Name**
- **The listed options are correct**

Use the UP ARROW and DOWN ARROW keys to select an option, and then press ENTER. Type the new information in the field that follows, and then press ENTER. If all of the options have been set, select **The listed options are correct**, and press then ENTER to return to the Setup menu for new options, or to complete the installation process.

The Change Setup Options Menu

If you select **Change Setup Options** in the Setup menu, you will see the following menu.

The options for this menu are:

Change Redir Options: Choose either the full or basic redirector. The full redirector is used for logging on to a Microsoft Windows NT or LAN Manager domain, or if you run programs that use advanced network functions such as named pipes. The basic redirector provides all standard workgroup functions such as connecting and disconnecting. It uses less memory and disk space than the full redirector. You must use the basic redirector if your computer has an 8088 processor.

Change Startup Options: Allows you to configure the computer to automatically start the Microsoft Network Client for MS-DOS or both the Network Client and Pop-up Interface.

Change logon Validation: Allows you to choose whether to log on to a domain.

Change Net Pop hot Key: Allows you to select a particular key to used in conjunction with CTRL+ALT, to activate the pop-up interface.

Use the UP ARROW and DOWN ARROW keys to select an option, and then press ENTER. Change the options as necessary, and then press ENTER. If all of the options have been set, select **The listed options are correct**, and then press ENTER to return to the Setup menu for new options, or to complete the installation process.

The Change Network Configuration Menu

If you select **Change Network Configuration** in the Startup menu, you will see the following menu.

This menu is different than the others because it has a double window. The selections that are highlighted in the upper and lower windows are directly related. The active window is indicated by a double white outline. You use the TAB key to activate the upper or lower window. After the window is active, you can use the UP ARROW and DOWN ARROW keys to select an option.

The upper window shows the installed adapters and protocols. The lower window has the following options:

- **Change Settings**: This option allows for settings to be made to the adapter or protocol that is currently highlighted in the upper window. If you are changing settings and a network adapter is selected, you may have the option to change some of the settings, such as driver name, IRQ, I/O address, and more. It is usually best to use the manufacturer's suggested settings if possible.
- If you are changing settings to the NetBEUI protocol, you can change the Maximum Sessions or the NCBS setting.
- If you are changing settings to the NWLink protocol, you can change the frame type from the default 802.2 (Ethernet_802.2) to any of the following: Ethernet_802.3, Ethernet_II, Ethernet_SNAP, or TOKENRING.
- If you are changing settings to the TCP/IP protocol, you can enable or disable the Domain Host Configuration Protocol (DHCP), input the IP address, subnet mask, and up to two default gateways, and set the number of NetBIOS sessions.

  NOTE: The format of all IP addresses in this section is based on spaces replacing the dots that separate the octets (that is, 127 0 0 1 instead of 127.0.0.1).
- **Remove**: Remove whatever network adapter or protocol is currently highlighted in the upper window.

- **Add Adapter**: Allows you to add a network adapter, and adds it to the upper window.
- **Add Protocol**: Allows you to add another protocol, and adds it to the upper window.

Use the UP ARROW and DOWN ARROW keys to select an option, and then press ENTER. Change the options as necessary. If all of the options have been set, select **The listed options are correct**, and then press ENTER to return to the Setup menu for new options, or to complete the installation process.

Modifying the Startup Disk for NWLink Frame Types

Finish the Microsoft Network Client for MS-DOS installation on the computer or the installation of files on the startup disk.

In the network installation directory ("Net" directory on the startup disk or on the computer's hard disk drive, unless the directory name was changed during installation), open the Protocol.ini file in Notepad or a text editor. Look for the protocol section of the file; it is preceded by a header, which appears as follows:

```
[ms$nwlink]
```

Under the title, find the value that appears as follows:

```
FRAME=Ethernet_802.2
```

This is the default setting. Change "Ethernet_802.2" to the appropriate frame type for your network. The frame types available must be input exactly as they appear here. The choices are as follows:

```
Ethernet_802.2
Ethernet_802.3
Ethernet_II
Ethernet_SNAP
TOKENRING
```

Save the changes in the Protocol.ini file.

Modifying the Startup Disk for Network Interface Cards Not in the List

Modifying the Startup Disk for network interface cards (NIC) not in the list requires installing the appropriate MS-DOS driver and editing two system files.

• Install an NDIS2-compatible MS-DOS driver for the NIC. These are usually included with the floppy disk supplied by the manufacturer with their drivers. If no drivers are available, download the appropriate driver from the manufacturer's Web site.

Appropriate drivers for the Microsoft Network Client for MS-DOS will always have a .dos extension. For example, the driver for Intel's EtherExpress Pro/10 EISA is:

Epro.dos

This driver should be placed in the Net directory on the computer (C:\Net, unless named differently) or on the MS-DOS startup disk (A:\Net).

• Modify the System.ini file. The NIC driver needs to be referenced in the System.ini file. This entry is found in the [network drivers] section, as illustrated below:

```
[network drivers]
netcard=elnkii.dos
transport=ndishlp.sys,*netbeui
devdir=A:\NET
LoadRMDrivers=yes
```

For "netcard=," replace the current driver with the file name of the NDIS2-compatible driver placed in the Net directory (for example, Epro.dos).

• Modify the Protocol.ini file. The NIC driver needs to be referenced in the Protocol.ini file. This entry is found in the [ms$ *driver_name*] section (the driver name will reflect what was originally chosen in the Network Installation Startup Disk process), as shown below:

```
[ms$elnkii]
drivername=ELNKII$
; INTERRUPT=3
; IOADDRESS=0x300
; DMACHANNEL=1
; MAXTRANSMITS=12
```

For "drivername=," replace the driver listed with the file name of the NDIS2-compatible driver; use a dollar sign ($) to replace the .dos file extension (for example, EPRO$).

Note: Do not change the header (for example, [ms$elnkii] in the example above); the header is a pointer throughout the .ini file.

Additional TCP/IP Settings for the Microsoft Network Client for MS-DOS

Specifying WINS Servers

If your Microsoft Network Client for MS-DOS uses DHCP (the default setting for MS-DOS TCP/IP), it will automatically receive the address for the Windows Internet Naming Service (WINS) server. If you want to statically configure your WINS server IP address, you must edit the client's Protocol.ini file and add the IP address to the [TCPIP] section.

For example, if you have two WINS servers available, add them into the [TCPIP] section as shown in the example below. Note that there are no dots (.) in the IP addresses.

```
[TCPIP]
WINS_SERVER0 = 11 101 13 53
WINS_SERVER1 = 11 101 12 198
```

Name queries will be sent to the WINS servers in the order in which they appear in the .ini file. The **ipconfig** command may show a different order of WINS servers (or even different WINS servers altogether)—these are the WINS server names sent by DHCP, and the Protocol.ini settings override them.

Important: There is a difference in functionality available in TCP/IP for Microsoft® Windows® for Workgroups, Windows NT Workstation, and Windows NT Server, versus MS-DOS TCP/IP. Specifically, an MS-DOS TCP/IP client does **not**:

- Support DNS resolution using WINS.
- Support WINS resolution using DNS.
- Register its name with the WINS database; it does queries only.

Logging On with TCP/IP Across a Router

If the domain controller is across a router from the Microsoft Network Client for MS-DOS computer, you must add a line to the client's LMHOSTS file (located in the Net directory—if there is no LMHOSTS file, you need to create one) for logons to be validated. The line has the following format:

www.xxx.yyy.zzz SRV_NAME #DOM:*DOM_NAME*

where:

- *www.xxx.yyy.zzz* is the IP address of the domain controller.
- *SRV_NAME* is the NetBIOS name of the domain controller.
- *DOM_NAME* is the name of the domain.

You must also ensure that the domain controller can contact the Microsoft Network Client for MS-DOS using one of the following methods:

- Enter the client's IP address and name in the domain controller's LMHOSTS file.
- Register the client with a WINS server that is accessible by the domain controller (placing a static entry in WINS for the Microsoft Network Client for MS-DOS).

Ipconfig.exe and Controlling DHCP Leases

The Ipconfig.exe utility provides DHCP configuration information **only**. The version of Ipconfig.exe provided with the Microsoft Network Client for MS-DOS does not support command-line switches for controlling DHCP address leases; you must use the DHCP Administration Utility instead.

References

The following articles in the Microsoft Knowledge Base provide additional information on this topic.

Q135465 - README.TXT: Microsoft Network Client version 3.0

Q128800 - How to Provide Additional NDIS2 Drivers for Network Client 3.0[winnt]

Q142857 - How to Create a Network Installation Boot Disk

Q130875 - Troubleshooting MS Network Client 3.0 and DHCP

Q128751 - No "Advanced" button in Client TCP/IP Configuration Box

Q123285 - IPCONFIG Displays Invalid Results

Q130538 - DHCP-Enabled MS-DOS Clients Do Not Resolve Host Names